property of each of said entities by a high throughput screening (HTS) method and

B2 (B) executing a genetic algorithm based on said property of said entities to identify a second population of entities.

B3 3. The method of claim 1, comprising randomly identifying said first population of entities prior to forming said first population according to step (A).

B4 6. The method of claim 1, further comprising generating a binary string representing variable parameters of entities, forming said entities and selecting said first population from said entities and step (B) comprises executing a genetic algorithm with a processor on said binary string to produce a binary string representing said second population of entities.

7. The method of claim 1, further comprising generating a binary string representing variable parameters of entities, forming said entities, evaluating said entities for a desired property, weighting said entities according to an hierarchy of fitness of said property and selecting said first population as a sampling from said weighed entities and step (B) comprises executing a genetic algorithm with a processor on said binary string to produce a binary string representing said second population of entities.

8. The method of claim 1, further comprising generating a binary string representing variable parameters of entities, forming said entities, evaluating said entities for a desired property, pairing said entities and (B) comprises executing a genetic algorithm with a processor on said binary string to produce a binary string representing said second population of entities.

9. The method of claim 1, further comprising generating a binary string representing variable parameters of entities, forming said entities, evaluating said entities for a desired property and pairing said entities and (B) comprises executing a genetic algorithm comprising a uniform random crossover operator to produce a binary string representing said second population of entities.

10. The method of claim 1, further comprising generating a binary string

representing variable parameters of entities, forming said entities, evaluating said entities for a desired property, weighting said entities according to an hierarchy of fitness according to said property, selecting said first population as a sampling from said weighed entities and pairing said entities and step (B) comprises executing a genetic algorithm with a processor on said binary string to produce a binary string representing said second population of entities.

B4

14. The method of claim 1, further comprising forming said second population of entities by steps of:

B5

providing a first reactant system at least partially embodied in a liquid; and

contacting the liquid with a second reactant system at least partially embodied in a gas, the second reactant system having a mass transport rate into the liquid wherein the liquid forms a film having a thickness sufficient to allow a reaction rate that is essentially independent of the mass transport rate of the second reactant system into the liquid.

40. A method of selecting a carbonylation catalyst, comprising:

B6

(A) forming a first population of prospective carbonylation catalyst entities and detecting a property of each of said entities; and

(B) executing a genetic algorithm based on said property of said entities to identify a second population of prospective carbonylation catalyst entities.

REMARKS

Claims 1 to 41 are pending.

Reset of the period for response and withdrawal of the rejection of TABLE 5 in the specification is noted and appreciated.

The amendments to the claims and specification eliminate clerical informalities and place the application in better condition for initial examination on the merits.